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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,620	11/26/2003	Richard J. Melker	UF-246XCD1	7104

23557 7590 10/09/2007

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TURK, NEIL N	
ART UNIT	**PAPER NUMBER**
1797	

MAIL DATE	DELIVERY MODE
10/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/722,620	MELKER ET AL.	
	Examiner	Art Unit	
	Neil Turk	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-27,29 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-27,29 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11/26/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remarks

This Office Action fully acknowledges Applicant's remarks filed on July 20th, 2007. Claims 1, 2, 4-27, 29, and 30 are pending. Claims 3 and 28 have been cancelled.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2, 4-27, 29, and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is also unclear in claim 1 how the medication is taken. It is unclear if the medicine is taken orally or if it is sucked on the by the patient or if it is digested by the patient. Between the above two oral administrations of the medication and marker, the sample of exhaled breath would be completely different, as one would be directly from the mouth and the other would have interacted with the patient's stomach. Claim 1 also does not specify any particular place that the sample of the patient's breath is obtained, such as through a tube or into a chamber. As such, any exhaling of the patient's breath would constitute obtaining a sample to confirm the presence or absence of the marker. Claim 25 requires that the marker is absorbed in the patient's gastrointestinal tract and excreted in the lungs, a further step that is not properly claimed given that independent claim 1 does not require that the marker is ever taken by the patient and is not taken in any particular manner

which the marker would be absorbed in the patient's gastrointestinal tract. It is also unclear in claim 1 how the medication is taken.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: how the presence and concentration of the marker are determined by the unique electronic fingerprint. Claim 5 recites that the sensor technology produces a unique electronic fingerprint to characterize the marker, but does not recite which steps are taken in accordance with such a fingerprint in order to determine the claimed and presence and concentration of the marker. As such a sensor which produces a unique output to characterize the marker will be taken to constitute such limitations.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what is meant by "transmitting the results" such that the claim does not contain any parallel recitation to where the results are obtained and then to where such results are transmitted. As the claim is currently read, a visual indication of the data from the detector would constitute transmitting the results from the detector to the person(s) analyzing the sample.

Claims 23-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the limitations of claims 23 and 24 further limit the method of

claim 1. Further, claims 23 and 24 recite reacting with enzymes and acids, respectively, in order for the marker to be detectable. Claim 1 recites a detectable marker exists at the offset, without any necessary reaction. It is also unclear how the marker "first reacts" with the enzymes or acids such that the marker may contact other components within the body before such contact to initiate a reaction. Claim 1 does not recite where or how the pill is taken and thereby any medication that at some point passes through the mouth or the stomach, respectively with claims 23 and 24, can be taken to read on the limitations as given in claims 23 and 24 for reacting with the respective parts. Even if Applicant intends claim 23 to recite that the medication with the marker is taken orally, it is unclear what further structure in the marker allows it to react first with enzymes in the patient's mouth and not to react first with a different component or at a different point. This is likewise seen in claim 24 as it is unclear what further structure is provided to the marker so as to have it first react with acids in the patient's stomach and what precludes it from reacting first with a different component or at a different point. In claim 25, it is unclear what further structure is associated with the marker for such absorption and secretion and how the marker is absorbed in the patients gastrointestinal tract and excreted in the lungs such that claim 1 does not require the medication with the marker to be taken in a fashion to require contact with the marker. Claim 1 merely recites providing a medication with a marker to the patient and obtaining a sample of the patient's breath, without providing an actual administering of the medication and marker and how the medication and marker are administered. It is further unclear how "volitional action" or, in the alternative, "forced action" in taking the medicine is related to where the marker first reacts.

Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: how the assessment of marker concentration leads to medication concentration. Applicant recites in claim 26 that the analysis includes assessing marker concentration, and thus medication concentration. How are the two related? Further, the analysis recited in claim 1 is drawn to a "yes" or "no" response to whether the medication was taken by the patient or not. How does one go from a "yes" or "no" analysis to determine a marker concentration, and further to additionally find the medication concentration? It is unclear how a qualitative analysis as described in claim 1 is adapted so as to yield quantitative results as recited in claim 26. What steps are taken to go from the "yes" or "no" conclusion to then go to a marker concentration and finally a medication concentration? It is further unclear how "volitional action" or, in the alternative, "forced action" in taking the medicine is related to where the marker first reacts.

Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: how the medication combined with the detectable marker is produced. Claim 29 recites steps of identifying a marker substance detectable in gaseous breath and then producing a medication with said detectable marker substance. Applicant has not provided specific manufacturing steps for producing the combination of the medicine and the marker so as to be detectable and act as an indication of patient compliance. A general statement of producing the medication combined with the detectable marker will be read to constitute any

production step(s) (or the final product is a medicine with a detectable marker, in which the production is inherent to arrive at the point) which results in a medicine with a detectable marker.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 7-9, 12-21, and 23-27, 29, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Katzman (5,962,335).

Katzman discloses a breath test for detection of drug metabolism. Katzman discloses that a safe and effective amount of the drug, isotropically-labelled, is administered to a subject. Katzman discloses a breath test kit in which after a suitable amount of time the exhaled breath of the subject is analyzed to determine the concentration of a metabolite, which is then used to determine the rate of metabolism of the drug (abstract). Katzman also discloses that the exhaled breath of the subject is analyzed before the drug is administered so as to give a baseline for the concentration of the metabolite in the breath of the subject (lines 50-67, col. 5). Katzman also discloses that the label used to identify the metabolite in the exhaled breath of the subject should at least be present on a portion of the drug that forms the metabolite (columns 7 and 8; lines 22-

26, col. 6). Katzman discloses that compositions for oral administration include such things as powders or granules, suspensions or solutions in water, capsules and tablets and flavorings may be desirable. Examiner asserts that such flavorings would act as odorous markers whose presence or absence could be analyzed qualitatively as an indication of compliance or noncompliance in taking the drug. Katzman also discloses that the drug may be administered topically, such as intranasally, or parenterally such as by intravenous drip or intraperitoneal, subcutaneous, or intramuscular injection, or administration may be done inhalation (lines 43-67, col. 6). Katzman discloses that following the step of administering the drug to the subject, the exhaled breath of the subject is analyzed to detect a metabolite or metabolites, and subsequently the concentration of the metabolite is used to determine the rate of metabolism of the drug (lines 13-36, col. 7; col. 14). Katzman discloses that the metabolite or metabolites are detected by an instrument such as a gas analyzer, mass spectrometer, or infrared spectrometer (lines 21-36, col. 7; lines 38-40, col. 8). Katzman also discloses that the breath test could be used for therapeutic drug monitoring in determining the concentration of the metabolite(s) in the exhaled breath of the subject and using such information to properly adjust the dosing regimen for the subject (lines 58-67, col. 9; lines 1-2, col. 10). Examiner asserts that the acquisition of the two concentration measurements necessary for employing the difference between them to establish an acceptable dosage regimen would inherently constitute recording the two concentration measurements at their respective measurement steps.

Claims 1, 2, 6, and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Forester (4,762,719).

Forester discloses a cough drop comprising a hard candy outer shell and a powdered centerfill containing a rapidly-dissolving powder and an active ingredient such as menthol and eucalyptus which is in the form of a liquid blend and a spray-dried powder. Forester discloses that the hard candy outer shell also contains menthol and eucalyptus as a liquid blend (abstract). Forester discloses that the rapidly-dissolving powders used enhance active ingredient release to provide the aromatic vaporization of the ingredient into the oral and nasal cavities (lines 50-68, col. 1; column 3 and Example 3). Forester also discloses that the flavors which may be employed in the hard candy shell include both natural and synthetic flavors such as citrus oils of cherry, lemon, orange, and lime, or essential oils such as peppermint, spearmint, or wintergreen, and also synthetic flavors (lines 48-55, col. 2). Examiner asserts that smelling of the exhaled breath would confirm or deny the presence of the detectable marker, thus showing if the cough drop had been taken or not.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4 and 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Forester in view of Payne (WO 98/39470) and in view of Kell (5,652,146).

Forester has been discussed above.

Forester does not disclose analyzing the patient's breath to confirm the presence of the marker by either semiconductor gas sensor technology or conductive polymer gas sensor technology.

Payne discloses a method of detecting conditions by analysis of gases or vapors. Payne discloses that the gas sensing device may comprise an array of semiconducting organic polymer gas sensors and the presence of any species present in the gas phase may be detected (pages 1-3). Payne discloses that other types of gas sensors such as metal oxide semiconductor (MOS), quartz resonator or SAW devices, as well as mass spectrometry or a GC-MS device might be used (pages 3-5). Payne discloses that an array of such sensors are used so as to permit selective identification of a wide range of gases by recognizing the characteristic "fingerprint" of response

across the array. Payne discloses that the output of the sensors correlates the output pattern (analyzed by analysis means 22) with the occurrence of certain conditions (page 4). Payne also discloses that it is possible to reduce water content by using purge and trap systems (page 6).

Kell discloses a method of monitoring patient compliance with medication prescriptions. Kell discloses that it is important to monitor a patient's regimen of medicine to ensure the medication is actually being taken as required (lines 11-16, 37-41, col. 1).

It would have been obvious to modify Forester to test to see that the medication is actually being taken such as taught by Kell such that it is important to know if the necessary medication is actually being taken and further to test the breath sample with semiconducting gas sensors for detecting the presence of gases or vapors such as taught by Payne in order to provide dynamic sensing technology for gases or vapors that may produce a characteristic response to correlate a condition such as to show the presence or absence of the menthol (or possible flavor ingredient of Forester) in the patient's breath.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Forester in view of Payne and in view of Ueda.

Forester and Payne have been discussed above.

Forester and Payne do not specifically disclose dehumidifying the sample of the patient's breath prior to analysis.

Ueda discloses a method and device for expiratory air examination. Ueda teaches that an absorbing filter is provided for removing particulates and contaminants which would hinder the

aimed examination. Ueda also discloses that a dehumidifying agent may be included partially in the absorbing filter (lines 11-62, col. 6).

It would have been obvious to modify Forester to include dehumidifying the air sample with a dehumidifying agent before analysis such as taught by Ueda so as to remove any moisture that may hinder the aimed examination and further given that Payne discloses a similar breath sampling method and device in which Payne teaches possibly including filters or reducing water content.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katzman in view of Payne and in view of Ueda.

Katzman, Payne, and Ueda have been discussed above.

It would have been obvious to modify Katzman to include dehumidifying the air sample with a dehumidifying agent before analysis such as taught by Ueda so as to remove any moisture that may hinder the aimed examination and further given that Payne discloses a similar breath sampling method and device in which Payne teaches possibly including filters or reducing water content.

Response to Arguments

Applicant's arguments filed July 20th, 2007 have been fully considered but they are not persuasive. **With regards to claims 1, 2, 7-9, 12-21, and 23-30** rejected under 35 USC 102(e) as being anticipated by Katzman (5,962,335), Applicant argues that claims of the subject invention are directed to the use of odorous markers that are detected and does not require

labeling of the medication. Applicant argues that Katzman does not disclose methods for monitoring patient compliance in taking a medication using odorous compounds. Applicant argues that Katzman does not disclose the claimed odorous markers, and thus Katzman cannot be said to anticipate the claims. Examiner argues that Katzman discloses using flavorings in the compositions used for oral administration (lines 59-64, col. 6), and such flavorings would act as odorous markers that could be detected in the patient's exhaled gaseous breath for the qualitative assessment of an indication of the compliance/noncompliance in taking the drug. Examiner further asserts that labeling of the drug is not precluded by Applicant's claims.

With regards to claims 1-3, 6, and 9-11 rejected under 35 USC 102(b) as being anticipated by Forester (4,762,719), Applicant argues that Forester does not teach or disclose the claimed invention. Applicant argues that Forester merely teaches a cough drop that includes ingredients that vaporize into the oral and nasal cavities to treat coughing. Applicant argues that there is no teaching or suggestion in Forester regarding medications with odorous markers that are detectable in gaseous breath. Examiner argues that the cough drop of Forester has a medication with an odorous marker (menthol and eucalyptus with also flavors such as various citrus oils or mints, as discussed above) that would be detectable from the exhaled breath of the person taking the cough drop.

With regards to claims 4 and 5 rejected under 35 USC 103(a) over Forester in view of Payne (WO 98/39470) and in view of Kell (5,652,146), Applicant argues that there is no teaching or suggestion by Forester, Payne, or Kell regarding monitoring patient exhaled breath to asses patient compliance in taking a medication, and none of the references provide a patient a medication and odorous marker detectable in gaseous exhaled breath; using a sensor to detect the

presence or absence of the marker and determining patient compliance in taking the medication. As discussed above, Forester does disclose a medication and odorous marker detectable in gaseous exhaled breath. Examiner further argues that the disclosure to Payne was brought in for gas sensing technology in the form of an array of semiconductor gas sensors so as to provide known gas sensing technology that may produce a characteristic response to correlate a condition such as to show the presence or absence of the menthol (or flavor ingredient of Forester) in the patient's breath. Examiner further argues that the disclosure to Kell was brought in for the disclosure to the importance to monitoring that a patient is taking medication as required. The disclosure in Kell to the urine being assessed is not relevant, as Kell was not relied upon for teaching assessing exhaled gaseous breath. Thereby, Payne discloses a known gas sensing semiconductor technology that can be used to show the presence or absence of the menthol (or flavor ingredient of Forester) and Kell discloses that monitoring a patient's compliance in taking medication is important, such that one would want to ensure (or asses noncompliance of) a patient's taking of the cough medication of Forester through the known gas sensing technology provided by Payne.

With regard to claim 22 rejected under 35 USC 103(a) as being unpatentable over Forester in view of Payne and in view of Ueda. Applicant argues that Ueda does not cure the shortcomings of Forester and Payne. Applicant argues that Ueda does not teach or suggest analysis of exhaled breath for monitoring patient compliance in taking a medication. As discussed above, such purported shortcomings in Forester and Payne do not exist. As such, the disclosure to Ueda for providing a dehumidified sample so as to remove particulates and contaminants that would hinder the examination, is maintained as proper.

With regard to claim 22 rejected under 35 USC 103(a) as being unpatentable over Katzman in view of Payne and in view of Ueda, Applicant argues that none of the references describe or suggest methods for monitoring patient compliance in taking medications, and none of the references describe or even suggest providing to a patient a medication in combination with an odorous marker detectable in gaseous breath. Examiner argues that as discussed above, such deficiencies do not exist, and the disclosure to Ueda for providing a dehumidified sample so as to remove particulates and contaminants that would hinder the examination, is maintained as proper.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Neil Turk whose telephone number is 571-272-8914. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NT

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